GROUND OF NEW PRINCIPLE OF IMPROVEMENT OF COUPLING IN A CONTACT «WHEEL-RAIL»

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Rail transport in Ukraine plays an important role in the development of the national economy and ensures the leading position in the world economic system. For its development is needed to increase savings of energy and operational resources, increasing the throughput and carrying capacity of the railways, the reduce natural resources consumption and waste management.

It's well known that the most important indicator of the traction and performance of the locomotive is implemented by the traction force depending on cohesion coefficient of wheel and rail, which varies depending on the presence of "third body" at the contact surfaces, weather and climatic conditions. For better traction all over the world using sand, which also pollutes the upper track structure, increases the wear of wheels and rails increases the resistance to movement.

To reduce the probability of occurrence of skidding wheelsets, as well as address the shortcomings inherent in the sand system of locomotive is proposed to apply the cleaning of the surface of wheels and rails from various contaminants by cleaning with dry ice pellets, with no need to extract and prepare the sand, the rail surface is not disturbed and the negative impact on the environment doesn't appear.

The advantages of cleaning with dry ice pellets are equipment usage and customization, absence of secondary waste, the possibility to obtain pellets from secondary raw materials without violation of the contacting surfaces of wheel and rail equilibrium roughness.

Cleaning with dry ice pellets is an alternative to far from perfect sand supply method, or other movable materials used on locomotives in the various countries of the world.

The usage of the proposed technology for increasing and stabilizing the coupling of the system "wheel-rail" allows to considerably reduce waste of natural resources (sand) that infest the prism ballast and rail-sleeper lattice, which adversely affects the drainage of moisture.

At the moment of contact of the pellets with the surface of the wheel or rail they are sublimated (evaporated) and return to the atmosphere. CO_2

has no smell and color, does not conduct electricity and is not flammable, is a secondary product of other production processes.

Currently, the technology of cleaning with dry ice pellets is difficult due to the high cost of the equipment for production of pellets and their storage. Therefore, it is necessary to develop the required elements of the system of production, storage and supply of dry ice pellets that will achieve a high economic effect.